

CLAIMS

1. A gas dosing apparatus, characterized in that it is comprised of a known volume container or metering chamber (9) destined to contain the gas that is to be injected, this metering chamber (9) being connected by means of a inlet duct to a supply of compressed gas (1), and the metering chamber (9) being connected through an outlet duct to a final dosing system or injector (10).

2. The gas dosing apparatus, according to claim 1, characterized in that between the compressed gas supply (1) and the metering chamber (9) there is a intake valve (3).

3. The gas dosing apparatus, according to claim 2, characterized in that the intake valve is an electrovalve that permits to regulate the flow of gas from the compressed gas supply (1) to the metering chamber (9).

4. The gas dosing apparatus, according to claim 1, characterized in that between the metering chamber (9) and the final dosing system or injector (10) there is an outlet valve (4).

5. The gas dosing apparatus, according to claim 4, characterized in that the outlet valve (4) is an electrovalve that allows to regulate the flow of gas from the metering chamber (9) to the final dosing system (10).

6. The gas dosing apparatus, according to any of the preceding claims, characterized in that in the metering chamber (9) there is at least a sensor to measure the pressure inside the metering chamber (9).

7. The gas dosing apparatus, according to any of the preceding claims, characterized in that in the metering chamber (9) there is at least a sensor to measure the temperature inside the metering chamber (9).

8. The gas dosing apparatus, according to any of the preceding claims, characterized in that in the metering chamber (9) there are two sensors to measure the pressure and temperature inside the metering chamber (9).

9. The gas dosing apparatus, according to any of the preceding claims, characterized in that in the metering chamber (9) there is a pressure sensor (5) that permits to continuously measure the pressure inside the metering chamber (9), or each time a pressure record is required.

10. The gas dosing apparatus, according to any of the preceding claims, characterized in that

in the metering chamber (9) there is a temperature sensor (6) that permits to continuously measure the temperature of the gas inside the metering chamber at regular intervals, or each time a temperature record is required.

11. The gas dosing apparatus, according to any of the preceding claims, characterized in that it has a temperature sensor (7) on the external side of the gas dosing apparatus and exposed to the environment.

12. The gas dosing apparatus, according to claim 11, characterized in that the temperature sensor (7), located on the external side of the gas dosing apparatus, permits to measure room temperature in the location where the final dosing takes place, said temperature sensor allows to measure the external temperature on a continuous basis, at regular intervals, or each time a temperature record is required.

13. The gas dosing apparatus, according to claim 11, characterized in that the temperature sensor (7) located on the external side of the gas dosing apparatus is a single sensor or an array of sensors.

14. The gas dosing apparatus, according to any of the preceding claims, characterized in that it further has a pressure sensor (12) on the external side of the gas dosing apparatus and exposed to the environment.

15. The gas dosing apparatus, according to any of the preceding claims, characterized in that between the compressed gas supply (1) and the intake valve (3) there is a gas shut-off valve (2).

16. The gas dosing apparatus, according to any of the preceding claims, characterized in that the compressed gas supply (1) contains any compressed gas (liquefied or otherwise) or is a pressurized line from which the gas to be dosified may be obtained.

17. The gas dosing apparatus, according to any of the preceding claims, characterized in that the temperature and pressure sensors are connected to an electronic control system.

18. The gas dosing apparatus, according to claim 17, characterized in that the electronic control system comprises a digital microprocessor circuit (8) and a control panel (11).

19. The gas dosing apparatus, according to claim 18, characterized in that the electronic control system comprises a digital microprocessor circuit (8) and a control panel (11), wherein the microprocessor permits to process information provided by the temperature and pressure sensors, and

performs necessary calculations from the data entered the control panel (11) in order to determine the correct amount of gas to be applied.

20. A Method of gas dosing, characterized in that it comprises the steps of:
allowing the flow of a determined amount of gas to a constant volume metering chamber;
measuring the pressure and temperature of the gas inside the chamber; allowing the discharge of a pre-set amount of gas by the activation of the application system.

21. The method of gas dosing, according to claim 20, characterized in that comprises (a) opening of the intake valve (3) to permit the controlled entry of gas from a storage container or compresses gas supply (9) of constant volume keeping the outlet valve closed.

22. The method of gas dosing, according to claims 20 and 21, characterized in that stage (b) comprises the measurement of pressure by means of a pressure sensor that records the increase in the pressure inside the metering chamber up to a pre-set value.

23. The method of gas dosing, according to claim 22, characterized in that once the desired pressure has been reached at stage (b), it comprises the closing of the intake valve (3).

24. The method of gas dosing, according to claim 23, characterized in that once the intake valve (3) has been closed, it comprises the measurement of the temperature of the gas stored in the metering chamber by means of a temperature sensor (6).

25. The method of gas dosing, according to claim 20 or 24, characterized in that it further comprises the measurement of the external temperature by means of an external temperature sensor.

26. The method of gas dosing, according to claims 20 to 25, characterized in that stage (c) comprises the execution of an application with the dosing gun, which transmits a signal to a microprocessor, wherein the microprocessor, once it has received the application signal, permits to open the outlet valve to start the discharge of the gas from the metering chamber.

27. The method of gas dosing, according to claim 26, characterized in that once the microprocessor has detected the pre-set pressure within the metering chamber, it closes the gas outlet valve.

28. The method of gas dosing, according to claims 20 to 27 characterized in that the cycle is repeated to refill the chamber and set the equipment for a new dosing operation.